

**ABSTRACT**

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A method and device for improving a signal-to-noise ratio measurement range of a monitoring device operating on a fiber optic network. The method includes receiving a wavelength division multiplexed optical signal including a plurality of optical signals centered at different wavelengths within a range of wavelengths. The wavelength division multiplexed optical signal is dispersed to form a discrete power spectrum. The discrete power spectrum is measured, and data representing the measured optical signals is generated. The measured optical signals include a point spread function response of a pixelated optical detector. A deconvolution operation is performed on the generated data to create an estimate that is more representative of the power spectrum by compensating for the point spread function of the pixelated optical detector.